

SOME DIPTERA (MICRODON) FROM NESTS OF ANTS.

BY T. D. A. COCKERELL AND HAZEL ANDREWS.

Of the University of Colorado, Boulder.

An excellent summary of our knowledge of the biology of the syrphid genus *Microdon* has been given by Dr. W. M. Wheeler,¹ while the taxonomy of the North American species has been fully discussed by Dr. S. W. Williston.² A new species from Colorado was reported by Cockerell many years ago,³ but was not described. W. A. Snow⁴ described a new species from the male as *Microdon megalogaster*; in the Aldrich catalogue this is said to be from Colorado, but no locality is cited by Snow, and evidently he did not know where the specimen came from. Snow's paper is mainly on Syrphidae from Colorado, but he says in his prefatory note that the material discussed is "chiefly" from the Colorado collection, implying that part of it is from another source. Doubt is also thrown upon the locality "Colorado" by the fact that Townsend described as *M. bombiformis* what appears to be the female of the same species from Virginia, while Johnson reports the species from New Jersey and Pennsylvania. It may be stated that a specimen from Pecos, New Mexico (W. P. Cockerell), was referred to Snow's species by Coquillett; this is in the United States National Museum, and Mr. Knab informs us that it is a female of our *M. coloradensis*. Wheeler gives good reasons for thinking that all the records of the breeding of *Microdon* in the United States refer to a single species, *M. tristis* Loew. The junior author of this paper was fortunate in breeding two species from larvae found in nests of *Formica* in Colorado in the spring of 1915. Upon examination, it seems that one of these is undescribed while the exact position of the other seems somewhat uncertain, so they are characterized herewith.

MICRODON COLORADENSIS, new species.

Male.—Robust; length (not including antennae), 14 mm.; width of abdomen about 6.75 mm.; length of wing 9.6 mm. Head black,

¹ Journ. New York Ent. Soc., vol. 16, 1908, pp. 202-213.

² Bull. 31, U. S. Nat. Museum, 1886, pp. 3-13.

³ Trans. Amer. Ent. Soc., vol. 20, 1893, p. 368.

⁴ Kansas University Quarterly, vol. 1, 1893, p. 34.

clothed with brassy yellow pile; front broad, inner orbits parallel; distance from ocelli to antennae much less than least distance between the eyes; ocelli approximate; antennae black, the first joint slightly shorter than the two following together, second joint about (or slightly over) half as long as third; third joint considerably shorter than first, pointed at tip; thorax black, with obscure purplish and green tints, the dorsum clothed with fox-red pile; scutellum short, rounded, transverse but projecting, not emarginate, its pile longer and brighter red than that on mesothorax; abdomen short, broad, black, pile long on margins of segments, reddish yellow, abundant on first and second segments, especially at sides, and on apical margin of

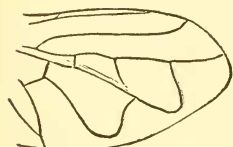


FIG. 1.—MICRODON COLORADENSIS.
WING OF MALE.

third; legs black, femora and tibiae clothed with reddish yellow pile; hind basitarsi not as long as remaining joints together, the whole hind tarsi thick, but the basitarsi not especially so; wings pale gray, veins blackish; vein forming outer side of discal cell strongly curved, finally directed upward forming an obtuse angle on outer side with vein bounding first posterior cell; distance

on upper side of first posterior cell from base to stump less than from stump to end; halteres cream color.

Female.—A little larger, width of abdomen over 7 mm.; differs from male in having the pile on head and thorax whitish yellow; pile on abdomen forming a broad pale yellowish shining band on hind margin of first segment, but black on sides of that segment anteriorly; on the other segments thin and black, with a few pale hairs on lateral hind margins of third segment.

Pupa.—Of the usual form and reddish color; length 10.5–12.5 mm., width 7.5 mm., height 5.5 mm.; easily distinguished from those of *M. tristis* and varieties by the absence of raised lines or other distinct sculpture; the surface is uneven, with small and obscure pustuliform elevations, arranged more or less in longitudinal rows. The posterior tubercle is relatively long and narrow, its length conspicuously greater than its apical breadth, whereas in *tristis*, variety, it is broad and short, its length much less than the apical breadth.

Egg.—Long-oval, white, about 1.75 mm. long, the surface regularly and densely beset with protuberances, giving a coarsely granular appearance under a lens.

Type.—Cat. No. 19727, U. S. Nat. Mus.

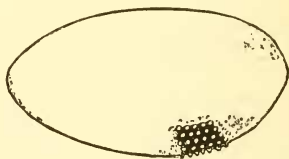


FIG. 2.—MICRODON COLORADENSIS. EGG.

Habitat.—Boulder, Colorado. Two of the soft, slug-like larvae were found in a nest of *Formica fusca argentea* Wheeler, April 13, 1915, at the foot of Flagstaff Hill, Boulder. They were placed in a glass jar with soil and some of the ants, and a third larva, found later, was added. On April 15, one of the larvae became a pupa. On May 14, two male flies hatched, and two days later a female appeared. On June 8 a female was caught at Pulpit Rock, Boulder. The type is a male. This is a large robust species, the sexes with quite differently colored hair, but both having the front broad. It is much larger than *M. tristis*, and differently colored. The size suggests *M. megalogaster* (*bombiformis*), but the color is different, and the front of the male is not narrowed in the middle, while the second antennal-joint is much more than a third the length of third. It is larger than *M. xanthopilis* Townsend, from California, and quite differently colored; in *xanthopilis* the hair is entirely brassy yellow (more orange in the male), without black.

MICRODON TRISTIS, subspecies.

Female.—Robust; length (not including antennae), 12 mm.; width of abdomen, 6 mm.; length of wing, 9 mm.; general color, black, with shining pale hair; antennae, black; front broad, but narrower than face; scutellum with a pair of small tubercles, hidden by hair; penultimate segment of abdomen at sides nearly or quite as long as the two preceding together. Head black, clothed with glittering very pale yellowish pile; eyes bare; transverse groove of front shallow, above it the integument is purplish black, while behind the eyes it is very faintly greenish; antennae elongate, first joint longer than third, second more than a third length of third, but not nearly half; thorax purplish-black, with rosy or coppery tints on disk, thinly clothed with hair like that of head; abdomen black, with extremely faint greenish tints; glistening pale hair on lateral margins of segments, covering dorsal surface of first segment, hind margin of second (broadened in middle), and forming a very broad band, widely interrupted in middle, along posterior marginal area of third, apical part of abdomen with scattered pale hair; the apparently bare parts of abdomen have thin black hair; legs black, with pale hair, orange on inner side of tarsi; hind tarsi thickened; wings dilute cinereous, pale reddish basally and in costal region, outer veins bordered by dusky clouds; outer corners of first posterior and discal cells broadly rounded, that of first posterior minutely appendiculate, but discal not; angle formed on outer side by first posterior and discal cells a little greater than a right angle; stump in first posterior cell before middle.

Male.—Superficially exactly like female, with the same colors, except that first abdominal segment is more distinctly green; front strongly narrowed above, the transverse groove, at the narrowest

point, strong; hair band on apical part of second abdominal segment interrupted; apical region with much pale glistening hair; first posterior cell not appendiculate; hind tarsi thick, but basitarsi hardly broader than next joint.

Pupa.—Length 12 mm., width 8, height 5 (female), or length 10.5 mm., width 7, height 4.5 (male). Surface sculpture essentially as in *M. tristis*, figured by Wheeler, except that the space between the mid-most longitudinal raised lines is fully equal to those between these lines and the next, instead of being much less. Color deep red-brown.

Habitat.—Boulder, Colorado. This is almost certainly the new species recorded from Wet Mountain Valley in 1893. A pupa was found at Boulder a few years ago, but being isolated from its proper environment gave only a crippled male fly, whose wings did not expand. Pupae were found May 1, 1915, in a nest of *Formica rufa aggerans* Wheeler, at Boulder. They were kept in a jar with the ants, and on May 23 a fly of each sex emerged. The specimens described are in the United States National Museum.

This is certainly allied to *M. tristis* Loew, but is considerably larger, with the first antennal joint entirely black, the outer angle formed by the first posterior and discal cells larger, thorax above with coppery and brassy (not green or bluish) tints. The dark tibiae and tarsi, and the absence of black pile on the front, show that this is neither *M. tristis ruficrus* Williston nor *M. tristis cothurnatus* Bigot. The last antennal joint is flattened at end, so that it appears obtuse in one view and acute in another. It is probable that it represents a western subspecies of *M. tristis*.¹

¹ Since the above was put in type, Mr. Chas. W. Johnson has published an article in *Psyche*, vol. 23, June, 1916, p. 75, in which he reviews the subject of *M. tristis* and *cothurnatus*. According to the interpretation there given, one Colorado species falls with *M. cothurnatus*, which is distinct from *tristis*.